

Dear Fellow Residents:

This valuable study of parking demand in Davis Square was prepared in 2008 by a team of students and professionals working under the supervision of Mark Chase, a transportation planner and resident of Davis Square who helped launch the Zipcar business model and whose experience extends to a wide range of alternative transportation modes. The study includes input from the Davis Area Resident Business Initiative (DARBI) and the Somerville Chamber of Commerce. The City of Somerville provided information and data for the study, but did not participate in the development of its analysis or conclusions.

The recommendations contained in this study do not necessarily represent the opinions or policies of the City's Traffic and Parking Department or the Mayor's Office. Some of these recommendations (such as use of private lots for public, metered, evening parking) are beyond our authority to implement unilaterally. Others (such as devoting a portion of Davis Square parking revenues directly to local-area improvements) raise significant issues of public equity, especially at a time of fiscal crisis.

It is our belief, however, that the data, analysis and policy options contained in this study constitute an important and useful addition to the ongoing discussion of parking policy and operations in Davis Square as well as other Somerville neighborhoods and business districts.

On behalf of the residents and business owners of Davis Square, and of the entire city, I want to offer my thanks to Mark Chase and his team for a thoughtful, well-researched, significant and provocative addition to the body of data and policy materials that the City can use in shaping its parking procedures.

Sincerely,

Joseph A. Curtatone
Mayor

Parking reform in Davis Square?

An analysis of parking demand

February 23, 2009

DRAFT Copy

Executive Summary

Davis Square is a vibrant urban square served well by a variety of transportation resources including the subway, several bus lines, a bike path, and a robust sidewalk network. Surveys find that about one third of the Square's visitors arrive by car while the balance walk, take transit, or bicycle to get to the Square. For those who do drive, finding a parking space can be a challenge, particularly on Friday and Saturday nights.

In April 2008, a parking study was conducted to assess current parking demand and availability in Davis Square. Results from this study are intended to assist local business owners and city officials in making informed decisions to manage parking in the Square. Comprised of three elements, the study first includes an inventory of parking supply and utilization conducted during seven periods during the Spring of 2008. Second, visitors and employees coming to the Square were surveyed to understand the current parking conditions from both the customer and employee perspective. Finally, examples of effective parking management practices in other cities in the United States were examined.

The parking inventory included all of the public parking, private off-street parking,

and a large percentage of residential permit parking (RPP) within a ten minute walk of Davis Square. Due to resource limitations, the inventory did not count all of the residential permit parking spaces. Of the spaces counted, the inventory results found that RPP accounts for the largest single pool of parking in the Davis Square area -- representing 46 percent of the 3,333 spaces counted. Privately owned parking lots account for 29 percent of parking spaces, and public spaces account for 22 percent of the available spaces in Davis Square. The remaining balance of spaces (3 percent) is made up of a mix of private residential spaces.

Public parking supply is most constrained on weekend nights. Ironically when demand is highest in public parking lots, demand is lowest in private parking lots. This presents an excellent opportunity to share parking spaces between office uses which need their parking Monday through Friday during the daytime, and the retail/ entertainment uses which experience peak demand on nights and weekends. By accessing private parking, the business community and city could more than double the effective public parking supply during weekend evenings without building a single new parking space.

The most valuable parking spaces in Davis Square are on-street parking spaces. These parking spaces provide the closest access to retail shops in the square. A simple way to improve parking allocation is to price the coveted on-street parking spaces at a higher rate than the more distant on and off-street parking spaces. Without correcting this pricing imbalance there will always be a perceived parking shortage as the on-street spaces will always be filled first.

In order to effectively manage the parking available in Davis Square, the study makes four recommendations:

1. Get the price of public parking right

Public parking should be priced to reflect the relative demand by location and time of day. All spaces in Davis Square are currently priced the same regardless of location. This encourages employees and long term parkers to park in the best parking spaces nearest to their location. Pricing at parking meters begins at 8AM, when there's very little demand for parking, and ends at 6PM, when there's still significant demand.

Ideally the price of parking should be set to insure that there's always some parking

available-- roughly that one in every seven spaces is free. If this were applied to Davis Square it would mean that parking would be very inexpensive or free before noon on weekdays; on weekday afternoons and weekend evenings parking would be charged at a variable rate to reflect increased demand. It should be noted that Somerville residents, regardless of where in the city they live, can always park for free in the resident permit parking areas adjacent to the square.

2. Eliminate time limits

One major benefit of pricing parking correctly is the opportunity to eliminate time limits. If there is always some availability of on-street parking, then there is no reason to ration parking spaces through time limits. The key is not how long someone parks in a spot, but that there's always some availability. Pricing parking correctly accomplishes this. Not having to worry about

parking time limits is one major benefit to consumers of parking that needs to be emphasized in order to help "sell" parking to businesses and drivers.

3. Dedicate parking revenues to improving the business district

Experience from other cities demonstrate that it is critical that net new revenues raised through increased parking revenues go back to improving the appearance and function of the area where charges are levied. Net new parking revenues would include the increased revenues generated through raising parking prices, less revenues lost by reducing parking rates during off-peak times as well as reduction in fine revenues generated.

A group of Davis Square businesses and residents could be formed to work with the city to identify areas of investment where funds could be applied.

4. Utilize Private Parking Lots

Private parking lots account for 29 percent of the parking supply in Davis Square. They are used primarily Monday through Friday during normal business hours, and are left largely empty during the evening when parking demand is greatest. Arrangements to share this space during non-business hours should be explored as access could greatly alleviate current pressures for parking during the non-business evening and weekend hours.

By utilizing private parking lots it may also be possible to delay or completely avoid building a parking garage in Davis Square. Parking structures start at about \$25,000 per space to construct. Without getting the on-street parking pricing right, visitors will still want to park on-street as long as these spaces remain the least expensive and most convenient option.



Table of Contents

| | |
|---|-----------|
| Executive Summary | 3 |
| Project Overview | 7 |
| Parking Inventory | 8 |
| Public Surveys | 12 |
| Case Studies | 21 |
| Recommendations and Strategies | 29 |
| Project Team | 31 |
| Appendix A: GIS Maps of Parking Inventory | 33 |
| Appendix B: Survey Questions (Visitors) | 42 |
| Appendix C: Survey Questions (Employees) | 44 |
| Appendix D: Summary Results for Visitors | 46 |
| Appendix E: Summary Results for Employees | 48 |
| Appendix F: Summary Responses 8-10 (Visitors) | 50 |
| Appendix G: Summary Responses 6-8 (Employees) | 55 |



List of Tables and Figures

| | | |
|-------------------|---|-----------|
| Table 1. | Parking spaces identified in Davis Square during inventory | 8 |
| Table 2. | Public Parking Spaces in Davis Square | 9 |
| Table 3. | Distribution of all transportation modes and mode combinations | 15 |
| Table 4. | Responses by transportation mode on the role parking concerns may play in a visitors' decisions to come to Davis | 17 |
| Figure 1. | Parking Utilization in Davis Square, Friday 7:30 p.m. | 9 |
| Figure 2. | Parking Utilization in Davis Square at noon during a Saturday inventory | 10 |
| Figure 3. | Parking Utilization in Davis Square, Wednesday 10:00 a.m. | 11 |
| Figure 4a. | Geographical distribution of visitors who completed the survey | 13 |
| Figure 4b. | Distribution of survey respondents across three categories: Somerville residents, surrounding neighborhoods, and other areas | 13 |
| Figure 5. | Percentage of Somerville residents surveyed by transportation mode | 14 |
| Figure 6. | Percentage and total number of times each travel mode was selected | 14 |
| Figure 7. | Number and percentage of respondents who reported single or multiple modes of transportation to visit Davis | 15 |
| Figure 8. | Average frequency of visits across the four mode choices | 16 |
| Figure 9. | Parking satisfaction level reported by all 114 respondents | 16 |
| Figure 10. | The amount of time spent to find a parking space and its impact on visitor's choice to come to Davis | 19 |
| Figure 11. | Graph showing how distance to parking affects visitors' overall satisfaction with parking in Davis | 19 |
| Figure 12. | Geographic distribution of respondents who selected "Public Transportation" (bus and/or subway) as at least one of the modes used to reach Davis Square | 20 |



Project Overview



Davis Square in Somerville, MA, has long been touted as a model transit-oriented community: served by several bus lines, situated along a well-traveled community bike/walking path, and minutes away from popular areas and downtown destinations via subway. A wide selection of shops, restaurants, local artist showcases, nearby parks, and an overall sense of community attract an eclectic mix of visitors to the Square year round.

Given its proximity to public transit, Davis Square also attracts a surprisingly large number of automobiles. Businesses and residents

have long been concerned with the extent of traffic congestion within the Square and its negative impacts on businesses and the surrounding community. Parking headaches abound as too many cars compete for too few spaces.

With the support of local businesses including the Chamber of Commerce, Davis Square BIG, and the Davis Area Resident-Business Initiative (DARBI), a team of students and working professionals, led by Davis Square resident and Transportation Planner Mark Chase, initiated a parking study in April 2008 to assess

current parking demand and availability in the Square. Results from this study are intended to assist local business owners and city officials make informed decisions to manage parking in Davis Square.

The parking study involved three elements: 1) An inventory of parking supply and utilization in the Square during seven periods during the Spring of 2008; 2) A survey of visitors and employees coming to the square; and 3) Case studies of cities in the United States that are managing parking effectively.

Parking Inventory of Davis Square

Our inventory included all of the public parking, private off-street parking and a large percent of residential permit parking (RPP) within a ten minute walk of Davis Square. In order to save on the labor in conducting counts, the study team did not count all of the residential permit parking spaces.

The parking inventory counted 3,627 spaces. As shown in Table 1, residential permit parking (RPP) and privately owned parking lots (i.e. offices, banks) account for almost 75 percent of the available parking in the Davis Square area (46 percent and 29 percent, respectively). Public spaces account for 22 percent of the available spaces in Davis Square, while the balance of the spaces (3 percent) is made up of an odd mix of private spaces.

Parking shortages and surpluses by time of week in Davis Square

One of the key elements of the parking study was to determine where and when parking shortages occur. The parking study team undertook seven separate parking counts, representing both high and low demand periods during the week and weekend. Inventories were conducted on the following dates and times:

Wednesday, May 14: 10 a.m. and 7:30 p.m.

Saturday, May 17: 10 a.m. and 12 p.m.

Friday, June 6: 7:30p.m., 9:30 p.m., and 11:30 p.m.

Figures 1-3 present GIS maps demonstrating demand at various times. Full page maps for all time periods can be found in Appendix A.

Table 1. Total number and type of spaces identified in Davis Square during inventory.

| Type of Parking | Total | Percent |
|---|-------------|----------------|
| Residential Permit Parking* | 1679 | 46.29% |
| Privately Owned Parking Lots | 1037 | 28.59% |
| On Street: 2 hr meter (.50/hr) | 309 | 8.52% |
| Off Street Parking Lots: 2hr meter (\$.50/hr) | 193 | 5.32% |
| On-Street Free 2hr. | 130 | 3.58% |
| Residential Midnight-6am | 40 | 1.10% |
| Free 15 minute Parking | 7 | 0.19% |
| Handicapped | 10 | 0.28% |
| Loading zone | 5 | 0.14% |
| Unregulated parking (Willow Ave) | 99 | 2.73% |
| Residential Private (Gorham, Tannery Bk, Ellinger) | 118 | 3.25% |
| TOTALS | 3627 | 100.00% |

*We did not count all of the residential permit parking spaces in order to save on the labor in conducting counts.

Public Metered Spaces

Prime location metered parking spaces on Elm and Holland Street always reached capacity first and were almost always at or near 100 percent occupancy regardless of the time of day, while many of the meters farther out from the Square demonstrated greater variability. The parking shortage at prime location meters was most acute on Friday evenings at 7:30 p.m. (see **Figure 1**) when 96 percent of metered parking spaces were in use both on and off the major streets.

Table 2: Public Parking Spaces in Davis Square

| Type of Parking | Spaces |
|---|--------|
| On Street: 2 hr meter (.50/hr) | 309 |
| Off Street Parking Lots: 2hr meter (\$.50/hr) | 193 |
| On-Street Free 2hr. | 130 |
| Residential Midnight-6am | 40 |
| Free 15 minute Parking | 7 |
| Unregulated parking (Willow Ave) | 99 |
| TOTALS | 778 |

Private Lots

Private lots are the single largest under-utilized parking resource in the Square. During the popular Friday 7:30 p.m. time frame (**Figure 1**) when public metered spaces were at 96% percent capacity, private lots were only 42 percent full. In addition, the number of private lot spaces far surpasses public metered spaces.

Total private lot capacity: **1037 Spaces**

Percent occupied at 7:30 Friday night: **42%**

Number of private lot spaces available: **601**

Thus the potential exists to almost double the number of available parking spaces during weekend evenings by sharing private parking



Bold numbers show the percentage of metered spots that are occupied in public lots.

Private lot utilization rate - 42%
Public lot parking utilization rate - 96%

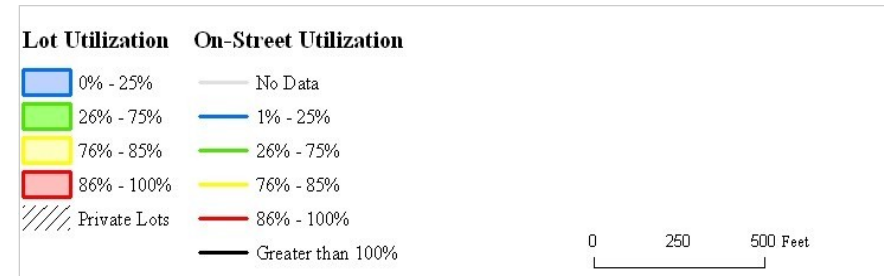


Figure 1. Friday 7:30 p.m. High Parking Demand

lots. Two or three very large lots comprise the majority of this inventory (behind the VFW, a lot off of Day Street, and one behind a building near the corner of Massachusetts Avenue and Russell Street). Therefore, a large number of spaces could be made available by negotiating with a small number of private parking lot owners.

Resident Permit Parking

Resident Permit Parking (RPP) represents the largest pool of parking spaces within a ten minute walk of Davis Square. The inventory counted 1679 RPP parking spaces within a ten minute walk. However, the number of parking spaces counted accounts for perhaps only 75 percent of the total RPP spaces (a large area between Morrison and Kidder was not counted).

Driveway Parking spaces

Due to resource limitations the parking inventory does not include driveway parking spaces. It is likely that there are a significant number of under-utilized driveways in the Davis Square area. Due to the low cost of on-street parking it is likely that many people who could fully utilize their driveways are parking cars on-street. Because of the dispersed nature of driveway parking spaces, it is unlikely they will become an important resource for Davis Square commercial parking needs. That said, driveway parking spaces could help to solve some parking problems on residential streets. This is beyond the scope of this study, but could be the focus of a follow up residential parking study.

Pricing

On or off street metered parking rates for all spaces in Davis Square are 50 cents per hour regardless of location. As a result, there is no monetary incentive for visitors or employees to park farther away from the Square and walk. Without such incentives, drivers typically take the closest available parking space, and may stay for several hours.

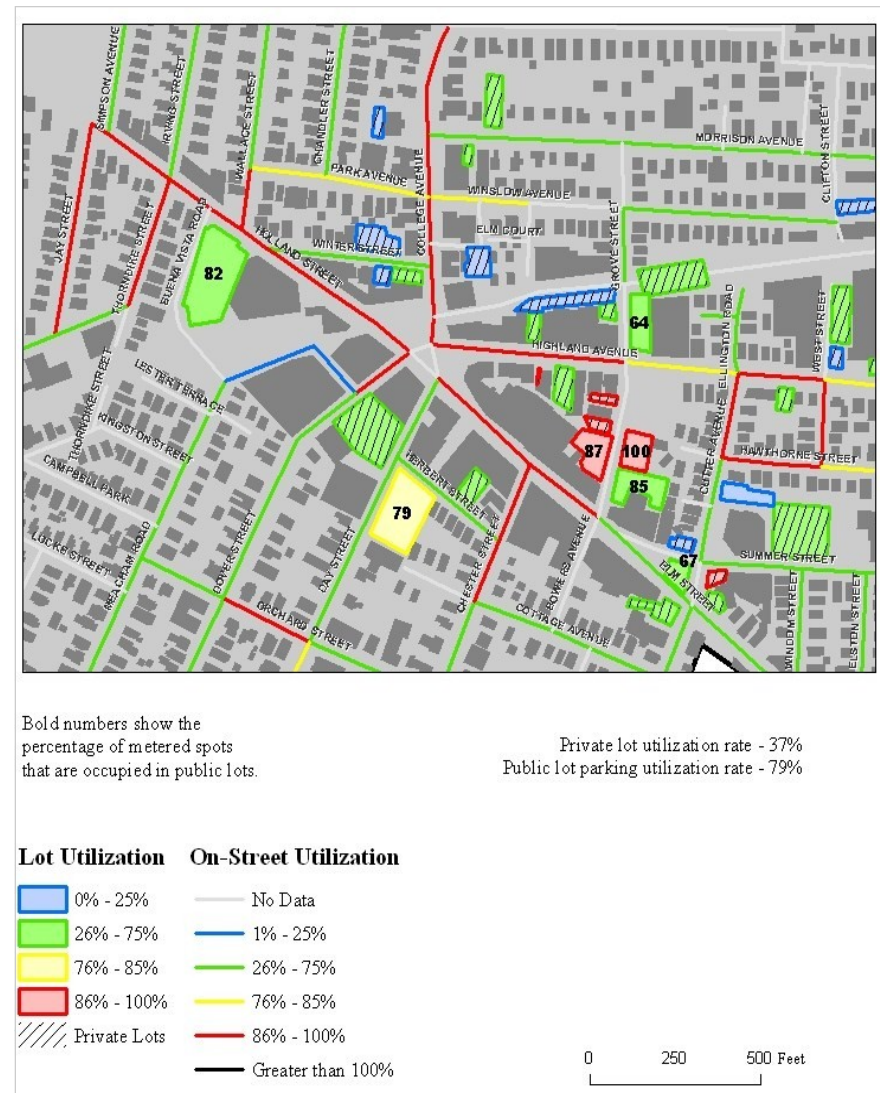


Figure 2. Parking Utilization in Davis Square at noon during a Saturday inventory.



Bold numbers show the percentage of metered spots that are occupied in public lots.

Private lot utilization rate - 66%
Public lot parking utilization rate - 69%

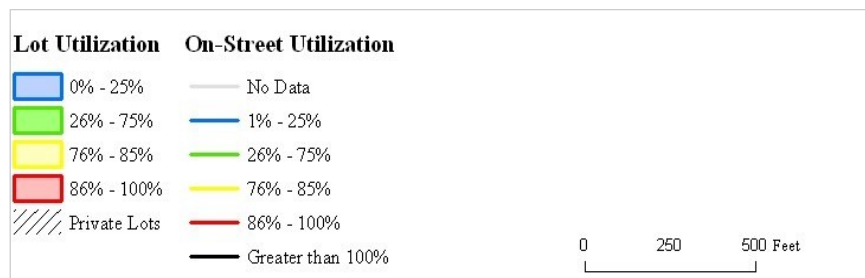
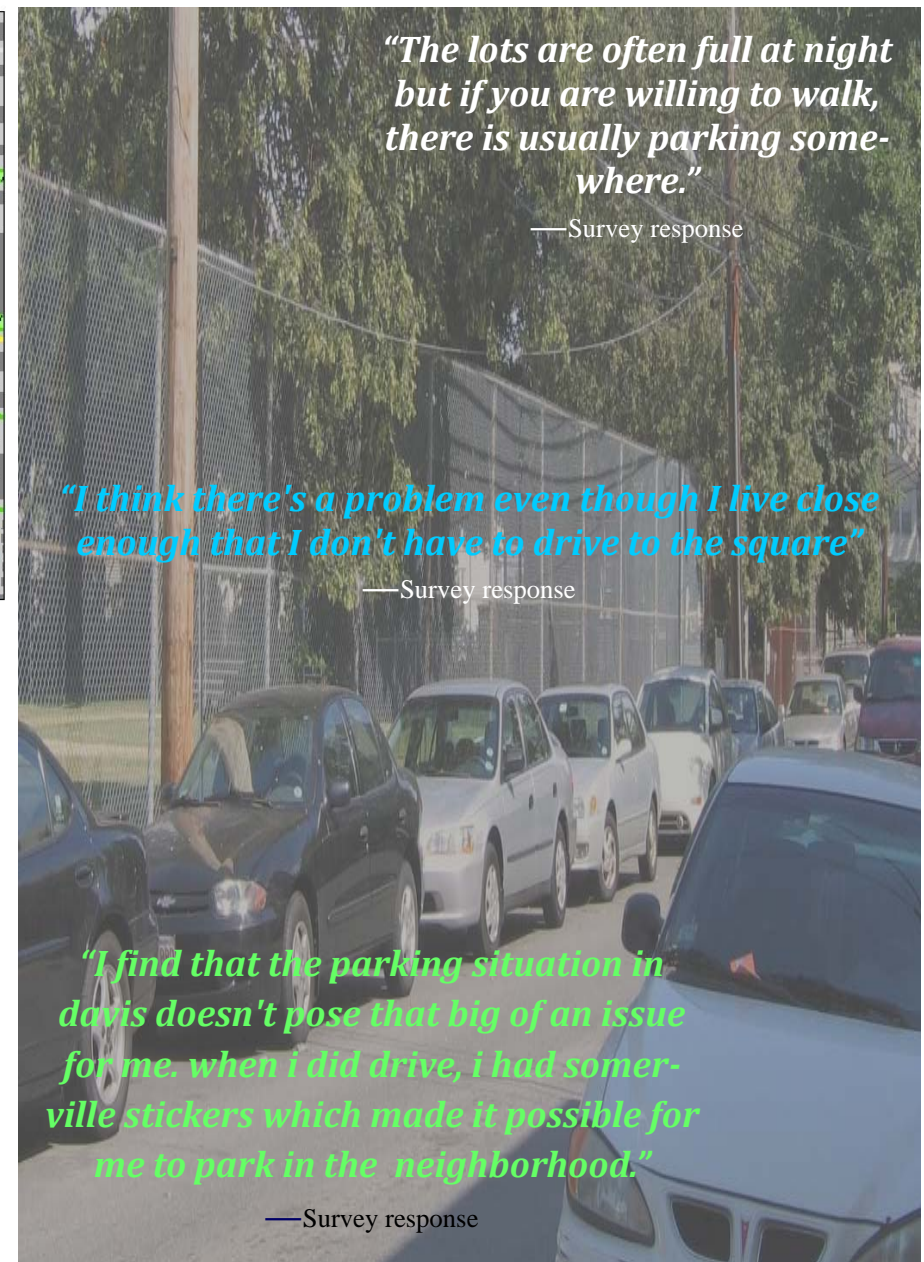


Figure 3. Wednesday 10:00 a.m. Low Parking Demand



Public Survey



Any changes to parking policy that may improve congestion will impact visitors and employees to varying degrees. In order to understand the current parking conditions from both customer and employee perspectives, surveys of these groups were conducted over a two-week period in July 2008.

Methodology

Due to the study's interest in the parking impact on both visitors and employees, two versions of the survey were developed according to each group's needs and presumed interests. Surveys were available online and conducted by team members through on-street interviews in Davis Square over a 2-week period in July 2008.

Purpose of the survey:

- Identify current transportation modes used by Davis Square employees and visitors
- Collect public, business, and employee feedback regarding current parking experiences in the Davis Square area
- Gather community ideas to improve or enhance Davis Square
- Determine possible need for and public commercial interest in exploring alternative parking options in the Davis Square area

“Davis doesn't necessarily need more parking, but drivers do need to factor in extra time when coming to the square to find parking”

— Survey response

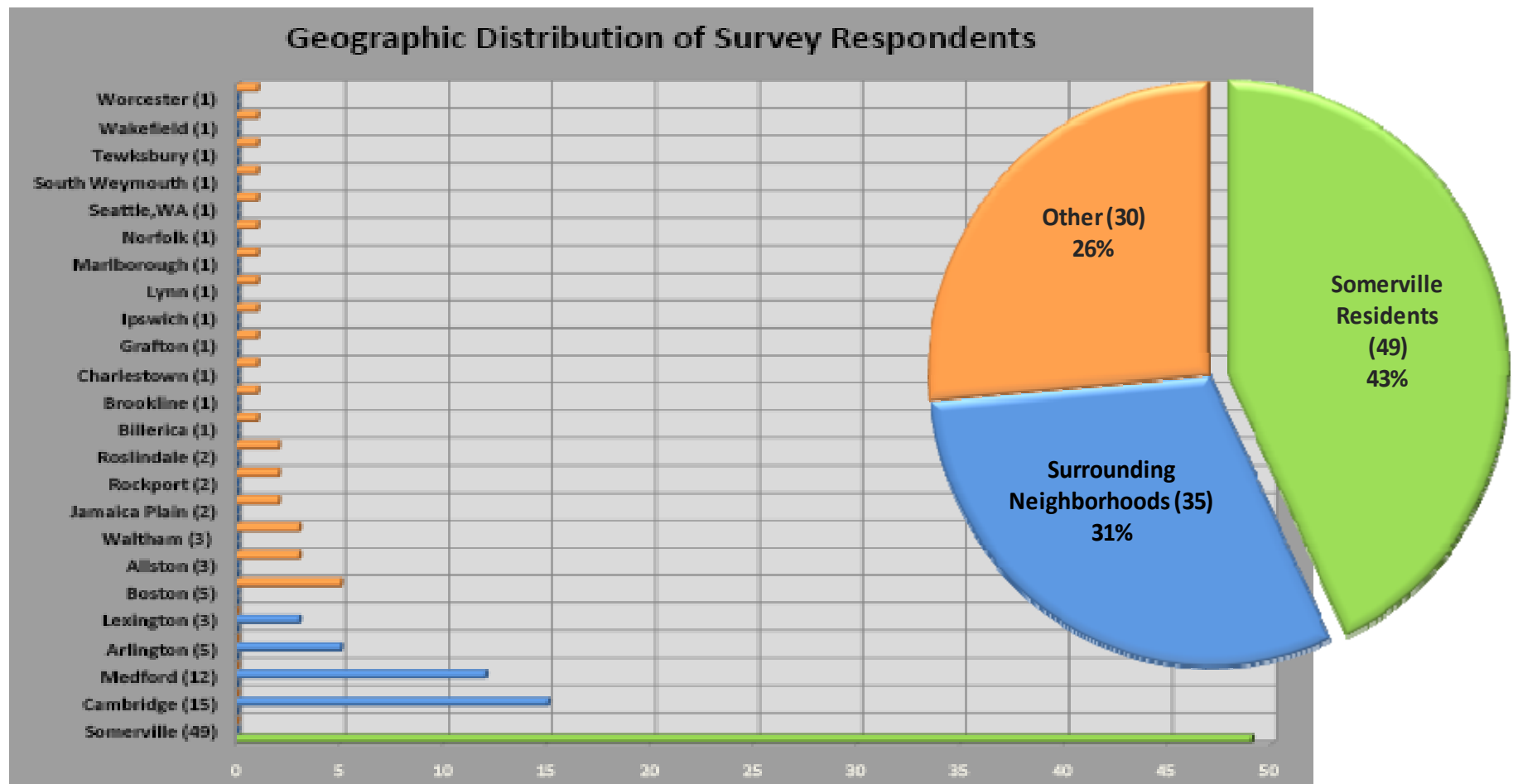
Survey Findings

In total, 114 visitors and 19 area employees completed the survey.

Where visitors to Davis Square are coming from

Figure 4a (bar graph). Geographical distribution of visitors who completed the survey. The numbers in parentheses represent the total number of individuals reported from each area.

Figure 4b (pie chart inset). Distribution of survey respondents across three categories: Somerville residents, surrounding neighborhoods, and other areas.



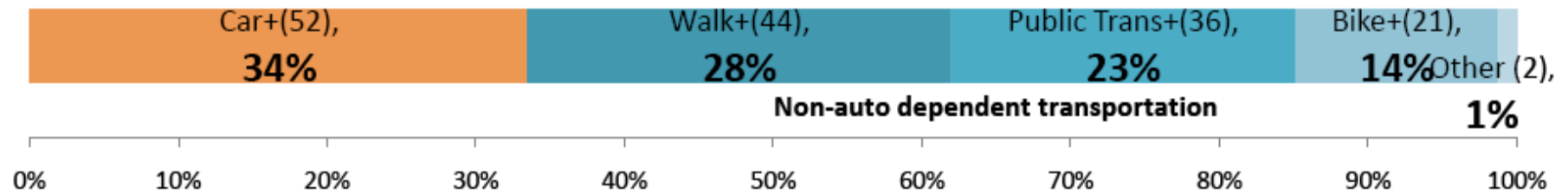


Figure 6. Percentage and total number of times (in parentheses) each travel mode was selected by respondents*

How people get to the Square:

As shown in Figures 4a-b, the majority (43 percent) of survey respondents were Somerville residents. Given the variety of transportation modes available in Somerville and most of the surrounding communities, we expected that many residents were already taking advantage of alternative, more sustainable (non-auto) travel modes. However, Somerville residents with a RPP may actually be encouraged to drive to the Square as their permits allow them to park for free along residential streets surrounding the square.

Figure 5 (right) presents a breakdown of the four transportation modes examined in this study and the percentage of Somerville residents who used each. As expected, a majority of respondents who walk to the Square are Somerville residents. The same number of residents drive as take public transportation to get to the square.

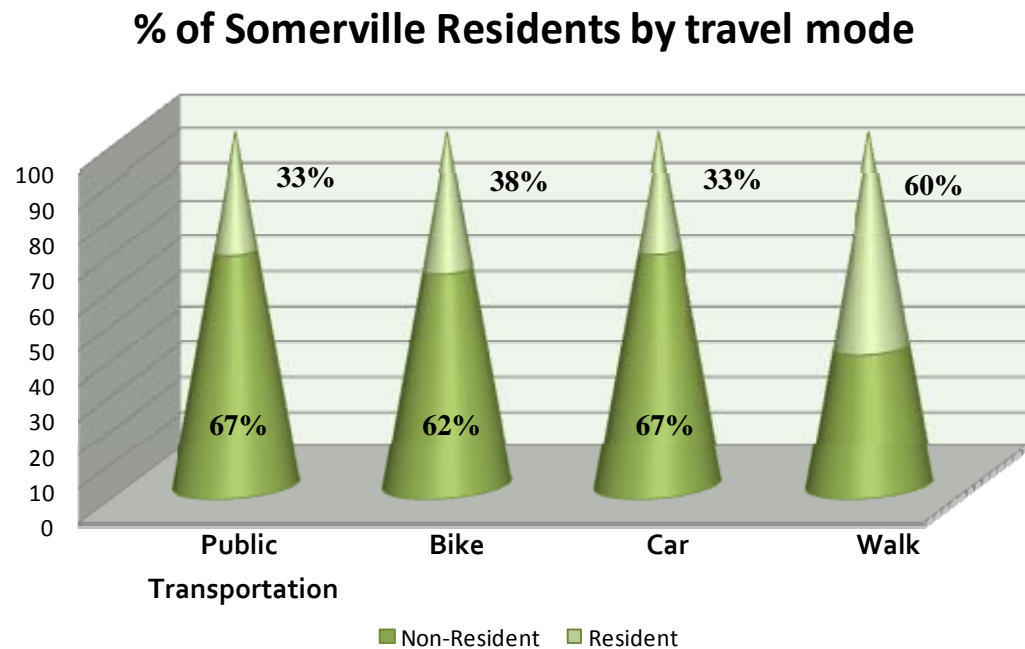


Figure 5. Breakdown of the percentage of Somerville residents represented in each of the four major transportation modes studied*.

*Since the survey allowed respondents to select more than one travel mode some modes have been counted more than once. The total of all modes reported (155) therefore will be greater than the sample size of respondents (114). The numbers in parentheses present a total of how many times this transit mode was selected. Percentages are based upon the aggregate total (155) and not the number of individuals who completed the survey.

Travel Mode Split

Non-automobile transportation represented approximately two-thirds of all transit modes selected by respondents (see Figure 6 pg. 14). It is important to mention however that of the 52 respondents who report traveling by car, 33 percent were traveling from within Somerville (Figure 5 pg. 14).

Table 3 (right) presents the distribution of all transportation modes and mode combinations reported in the survey for all respondents. The “other” category represents mode choices not offered as an option in the survey (one motorcycle and one Vespa), and while indicated here, they have not been factored into calculations in other sections of this report unless specified.

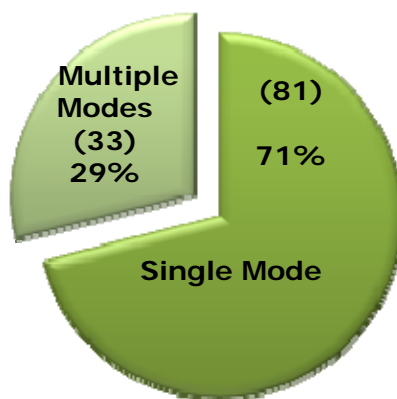


Figure 7. Pie chart illustrating the number and percentage of respondents who reported single or multiple modes of transportation to visit Davis.

| Mode/ Mode Combination | # of times selected | % of all respondents |
|------------------------------------|---------------------|----------------------|
| Single Mode¹: | | |
| Car Only | 33 | 28.9 |
| Walk Only | 20 | 17.5 |
| Public Transportation Only | 17 | 14.9 |
| Bike Only | 9 | 7.9 |
| Other | 2 | 1.8 |
| Multiple Modes²: | | |
| PubTrans + Walk | 8 | 7 |
| Car + Walk | 6 | 5.3 |
| Bike + Car | 4 | 3.5 |
| Car + PubTrans | 3 | 2.6 |
| Car + PubTrans + Walk | 3 | 2.6 |
| Bike + Walk | 2 | 1.8 |
| Bike + Car + Walk + PubTrans | 2 | 1.8 |
| Bike + Public Trans + Walk | 2 | 1.8 |
| Bike + PublicTrans + Other | 1 | 0.9 |
| Bike + Car + Walk | 1 | 0.9 |
| No Answer | 1 | 0.9 |
| Total | 114 | 100 |

Table 3: Distribution of single and multiple transportation modes

¹“Single Mode” represents respondents using only one transportation method consistently to visit Davis Square

²“Multiple Mode” respondents selected more than one transportation mode. These respondents either require more than one mode per visit (i.e. Public Transportation + Bike), or chose to use different means of transportation dependent of the needs of the visit.

Totals per mode have been calculated by adding the amount of times each mode was selected. For example, 33 people selected always travelling by car, but 19 people reported using a car for at least some of their visits. 33+19=52 total number of times “car” was selected (will be greater than number of respondents who took the survey).

Frequency of Visits

Car drivers (the most often selected mode) visit the Square much fewer times than those who walk. Those who drive to Davis report visiting the square 3 or less times in a week, whereas those who walk, bike or take public transportation tend to visit on a more consistent basis.

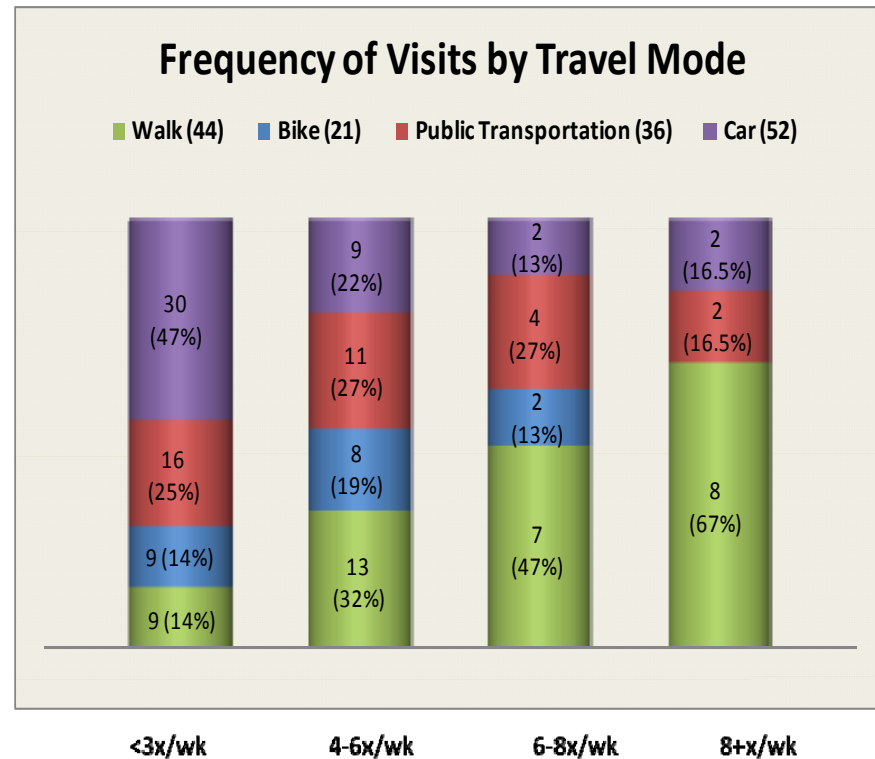
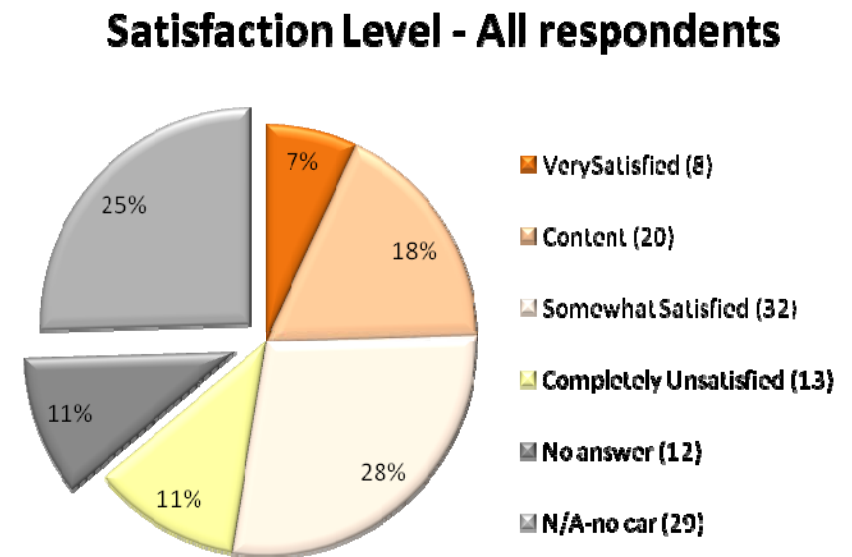


Figure 8: Bar chart illustrating the average frequency of visits across the four mode choices. Numbers indicate responses per mode choice within each time category; Percentages are based on the total number of respondents within each time category.

Are people happy?

Across all 114 respondents, 46 percent identified themselves as being either “content” or “somewhat satisfied” with parking availability in Davis Square (see pie chart, Figure 9). A reoccurring sentiment was that yes, parking in the square is not always readily available, but it is an accepted part of travel for many visitors and consistent with parking conditions in other communities. It may be inferred, from this data – along with qualitative feedback (see Appendices D-E), that many of the people surveyed would be open to changes in parking facilities if such changes would result in improved availability and convenience.

Figure 9. Parking satisfaction level reported by all 114 respondents



Survey Question 7: Does a lack of parking ever influence your decision to come to Davis Square?

| | Almost Always | Occasionally | Rarely | Never | No Answer | Total |
|----------------------------|---------------|--------------|--------|-------|-----------|-------|
| All Respondents | 2 | 25 | 21 | 48 | 18 | 114 |
| Car (52) | 2 | 20 | 8 | 18 | 4 | 52 |
| Walk (44) | 0 | 8 | 9 | 16 | 11 | 44 |
| Public Transportation (36) | 0 | 7 | 7 | 15 | 7 | 36 |
| Bike (21) | 0 | 4 | 3 | 10 | 4 | 21 |
| Other (2) | 0 | 0 | 0 | 2 | 0 | 2 |

Table 4: Responses by transportation mode on the role parking concerns may play in influencing visitors' decisions to come to Davis.

Table 4 presents a summary of how parking may influence trips across different transportation modes. Interestingly, although the amount of respondents who reported being “Very Satisfied” (Figure 9) with parking in Davis Square was quite low, a majority report that parking concerns “Never” influence their decisions to visit the area. Of the respondents who indicated that parking does “Occasionally” influence their visits (a comparative percent to those who reported “Never”), almost all were car drivers and many specified instances when parking would be considered a determinant such as evenings, weekends, and during special events (festivals, etc.).



“My less than 3 visits is heavily influenced by probability that I will not find parking so I don't even bother going.”

– Survey respondent who reports traveling to Davis by car only.

Survey Findings: Car drivers only

Of the respondents who reported using a car to travel to Davis, 32 percent (17) were Somerville residents (Figure 5). Thus almost 2/3 of car drivers are visiting from outside the city—which may provide some insights into the accessibility and practicality of alternatives connecting non-Somerville residents to the Davis area. Across all geographic areas represented in the survey, Somerville residents represented the greatest number of car drivers from a single area. Residents of surrounding communities—Medford (7), Cambridge (5), Arlington (4), and Lexington (3)—constituted the next largest proportion of drivers (19 combined drivers, or 37 percent).

According to Figure 10, only 2 people reported that time to find parking “Almost Always” influenced their decision to come to Davis Square. Both of these respondents spent up to 10 minutes to find a parking spot. Within this same grouping (5-10 minutes to find

parking), a majority reported that parking “Occasionally” influenced their visits. Considering that many people (20) do “Occasionally” forgo visits to the Square because of parking it may be worth identifying possible barriers that play a part in this decision. As would be expected, most of those who reported spending less than 5 minutes to park reported that parking “Never” influences their decisions to visit.

Where are drivers parking?

Parking options in Davis Square are limited to hourly meters, courtesy business lots (during business hours), and residential-only permit parking. A vast majority of car-drivers surveyed report parking at meters when they come to the

Square, with minimal difference reported between on-street vs. off-street meter usage. Drivers who park at meters were almost evenly split between allowing parking options to influence their travel decisions “Almost Always” and “Rarely” making it difficult to identify parking availability as a determining factor in visiting the Square.

Suggestions given by respondents to improve parking availability

- Extend time limits at meters
- Reduce resident permitting
- Provide more short-term parking
- Allow the use of private lots for use in the evenings
- Better communication of parking access and regulations



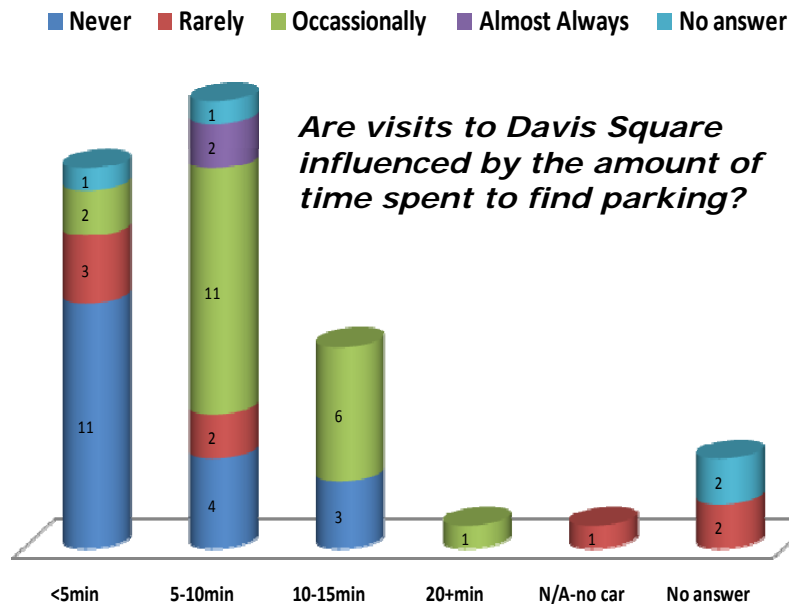


Figure 10: The amount of time spent to find a parking space and its impact on visitor's choice to come to Davis.

Although metered parking in the Davis Square area is considered common and acceptable, it was also commonly cited as a source of frustration. The most commonly cited complaints include overly aggressive ticketing, inconsistencies in time limits, and a lack of clear signage directing people to public parking.



How does the distance required to walk impact satisfaction with parking in Davis?

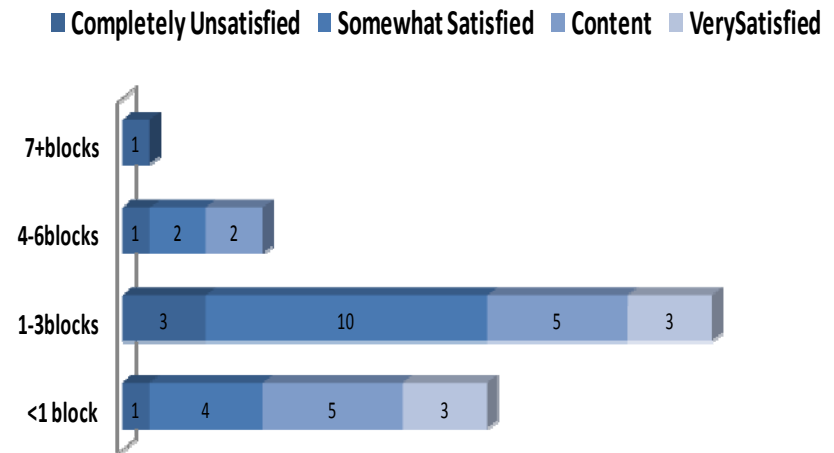


Figure 11: Graph showing how distance to parking affects visitors' overall satisfaction with parking in Davis.

How does distance to parking affect driver satisfaction?

Most respondents—including all of those who report being “very satisfied” with parking—report finding a parking space within three blocks of their intended destination (Figure 11). A majority of the remaining respondents ranked their level of satisfaction as either “somewhat satisfied” or “content”, indicating that distance may not play a very large role in drivers' decisions to visit the square.

“People need to know where to park - there are too many restricted areas and rules, people don't know where to go.”

- Survey respondent

Survey Findings: Non-car drivers & Employees

Although cars represented the single largest transportation mode, it is important to recognize that the combination of non-car transportation modes far surpassed the number of those driving. In fact, of the 114 people surveyed, two-thirds do not drive (Figure 6, pg. 14). A geographic distribution of non-car drivers is presented in Figure 12. Additional data for all visitors surveyed, including non-car modes of transportation can be found in Appendix D.



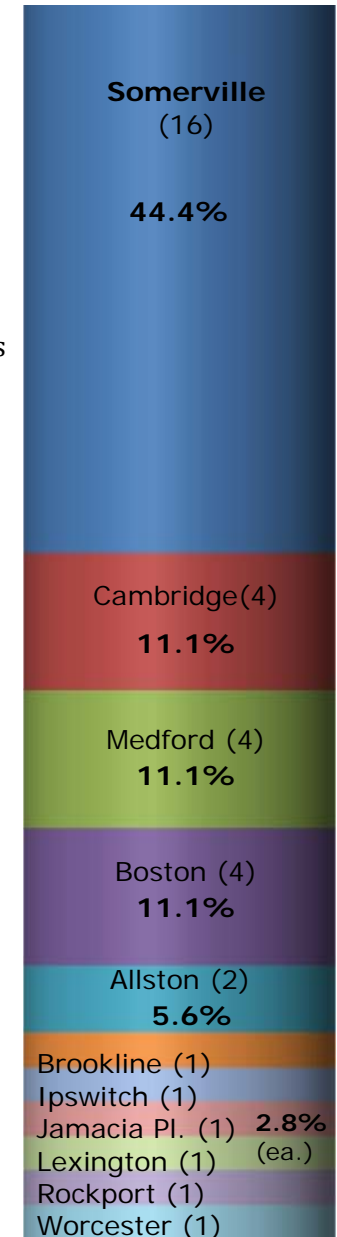
Visitors to and residents of Davis Square have several transportation options. Shown here, pedestrian and bicyclists enjoy the Square, while close proximity to the Davis T stop and Community Path provide options for local and regional travel.

Employees of Davis Square

Due to time constraints, our outreach to employees (and employers) in the Davis Square area was limited. Nineteen employees however did participate, the results from this group can be found in Appendix E. Much more investigation should be conducted with both employees and local business leaders to better understand how these groups are impacted by parking and what actions they would like to see taken. Employee involvement in implementing parking solutions should also be encouraged.

Sustainable (non-auto) transportation represented almost 2/3 of selected transit modes by all respondents

Figure 12: Geographic distribution of respondents who selected "Public Transportation" (bus and/or subway) as at least one of the modes used to reach Davis Square.



Case Studies: Examples of Parking Management Strategies

The idea of pricing parking to regulate demand has been gaining traction across the world as more and more communities have begun to question the notion of free parking by right. Setting meter prices so that 85 percent of spaces are occupied and 15 percent remain available helps to encourage people to use the most valuable parking spaces appropriately. The additional revenues generated are typically returned to the community adjacent to the parking for neighborhood improvements.

When prices are set to recover the full cost of parking facilities, parking demand is typically reduced by 10-30 percent compared with free parking. Studies have shown that it is more economically efficient and socially fair to charge motorists directly for parking rather than dispersing the costs into cross-subsidies from consumers who drive less (or not at all). Shoup (2005) provides the following guidelines for efficient parking pricing:

- Price parking for full cost recovery; at a minimum, all costs of building and operating parking facilities should be recovered from users. Prices may be higher to reflect the opportunity cost of land and to provide benefits.

- Price the most convenient parking, such as on-street spaces, so occupancy averages 85-90 percent. Use variable fees, with higher rates during peak periods and lower rates during off-peak periods.
- Dedicate some or all of the revenue from on-street parking to benefit local businesses and residents.
- Unbundle parking from building rents, so occupants only pay for the number of spaces they want.
- Allow private developers and building managers to decide how much parking to provide at each destination, rather than relying on rigid regulations.

Several localities have been particularly successful in their efforts to implement such measures into their parking policies. For the purpose of exploring potential parking solutions for Davis Square case studies from Redwood City, CA and Burlingame, CA were examined.



“The price is too high if many spaces are vacant, and too low if no spaces are vacant. Children learn that porridge shouldn’t be too hot or too cold, and that beds shouldn’t be too soft or too firm. Likewise, the price of curb parking shouldn’t be too high or too low. When about 15 percent of curb spaces are vacant, the price is just right”

-Donald Shoup, on the “Goldilocks Principle”

Case Study #1: Redwood City, CA- A Carrots and Sticks Approach

Redwood City is an emerging entertainment capital on the San Francisco Peninsula (population about 77,000, nearly equal to Somerville) with several theater venues that draw big-name celebrities and crowds from all over the Bay Area. Anticipating an explosion of visitors to the downtown area, where two of the theaters were planning to relocate, the city began to question its existing parking supply. After learning that drivers searching for curbside parking created 950,000 excess vehicle miles of travel per year—which is equal to 38 trips around the earth in just one retail district in Los Angeles (Shoup, 2007), planners and policy makers in Redwood City, CA knew that they had to make a change to the way parking was handled in their increasingly crowded downtown.

To develop a plan, City Staff thoroughly researched the parking patterns in the downtown area and conducted field survey to analyze where parking problem areas existed by time and by area (Redwood City, 2005). Future conditions were also examined through calculating the impact on the downtown parking system created by the added parking demand of the new retail/cinema project. In order to help downtown

stakeholders understand the challenges and options ahead, and to enable staff to learn from those “in the trenches” of the parking system, a series of community workshops were held. The presentations and discussions at the workshops simultaneously allowed the stakeholders to grasp the difficulty of managing parking in a lively, walkable downtown and staff to learn from those with first-hand experience with downtown’s needs.

The data collected revealed that the system was both underused and in excess of actual needs. At its peak of activity (around 1 pm on weekdays), city-controlled downtown parking was only at 69 percent occupancy. Even during the dot-com craze, that figure only raised to 78 percent, still far below the ideal 85 percent. The problem was not a shortage of parking, but that the most desirable spaces were always full. On-street spaces on Broadway (the main thoroughfare) were at 100 percent occupancy all day long while plenty of spaces sat empty just around the corner within a comfortable walking distance.

Such findings pushed staff to ask, “Do we actually have a parking shortage, as per-

ceived by motorists, or a parking management problem?” (Redwood City, 2005).

Redwood City decided to use an incentive base approach to their parking problem. Two primary policy tools and a new meter technology were adopted by the City Council to manage public parking in the downtown district: prices and time limits.

Action #1: Institute Market-Rate Pricing

Realizing that only market-rate pricing can guarantee available on-street spaces, convenience, and positive experiences for Downtown visitors, Redwood City staff plan to track parking occupancy levels to determine the true market price. Initially, parking prices were set based on analysis of current parking occupancy levels and pricing, and analysis of pricing in nearby cities.

The city’s initial parking structure is shown in the table on the next page.

| | | Weekday 10am – 6pm | Weekdays 6pm- 10am | Weekends, 10am- 10pm |
|-----------------------------------|---|-----------------------|-----------------------|-------------------------|
| Prime Parking Locations: | | | | |
| | Broadway and cinema side streets curb parking | \$0.50 per hour | \$0.75 per hour | \$0.75 per hour |
| | Other core curb parking | \$0.50 per hour | \$0.50 per hour | \$0.50 per hour |
| | Perry St Lot | \$0.50 per hour | \$0.50 per hour | \$0.50 per hour |
| | Library Lot "A" | \$0.50 per hour | \$0.50 per hour | \$0.50 per hour |
| | Library Lot "B" | \$0.50 per hour | \$0.50 per hour | \$0.50 per hour |
| Economy Parking Locations: | | | | |
| | Peripheral curb parking | \$0.25 per hour | \$0.25 per hour | \$0.25 per hour |
| | Outer office areas, curb parking | \$0.25 per hour | FREE | FREE |
| | Winslow Lot | \$0.25 per hour | \$0.25 per hour | \$0.25 per hour |
| | Main Street Lot | \$0.25 per hour | \$0.25 per hour | \$0.25 per hour |

The map below illustrates how Redwood City's new parking policies were implemented:

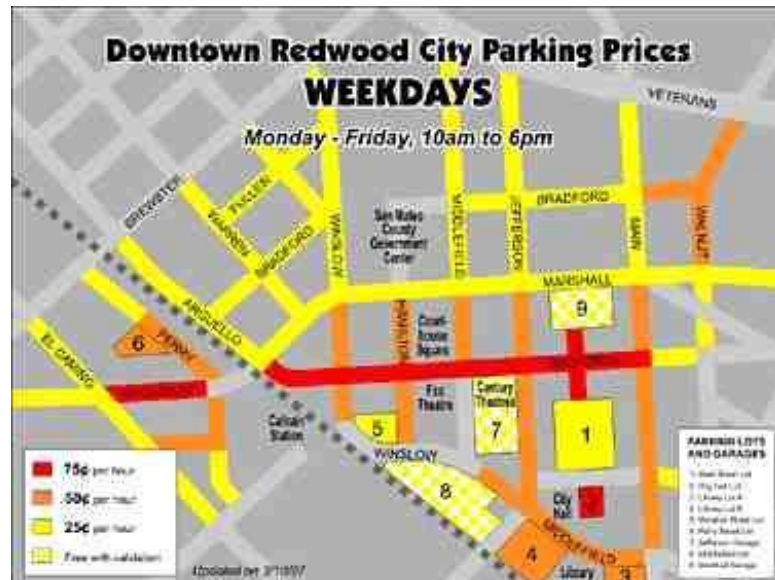


Image via City of Redwood, CA

Action #2: Eliminate Time Limits

Time limits are traditionally needed to insure that there is available short term parking. A major benefit of getting the price of parking right is that time limits become unnecessary. In their Parking Management Plan, staff write, "Who wants to find a \$25 ticket sitting on their windshield at the end of a visit for being two minutes late back to their car? Moreover, who wants their customers to conclude their Downtown experience that way?" (Redwood City, 2005). Staff felt confident that their new pricing system would be sufficient to create turnover and ensure the necessary 15 percent vacancy rate, neither of which time limits have ever shown to generate.

Action #3: Convert the Core to Computerized “Pay-by-Space” Meters

Following suite with Shoup’s ‘Goldilocks Principle’, Redwood City employed new technology to monitor the appropriateness of the new prices. Computerized meters manufactured by Digital Payment Technologies allow staff to track where and when the use is too low (indicating a need to lower the price) and when it is too high (indicating a need to raise the price), that conventional meters are not capable of. A series of other benefits can be reaped from computerized multi-space meters, including:

- Better urban design
- Quicker repairs
- Solar power
- Better information
- Revenue control
- Better data collection

Action #4: Keep Downtown Meter Revenue in Downtown

Instead of depositing all meter and permit revenue in a general Parking Fund, from which monies can be spent only on maintenance and operation of the downtown parking system, the new price parking system will direct its revenue towards improvements in the downtown area. A Parking Fund Advisory Committee (PCAC) made up of downtown merchants was formed to advise the City Council on how to use these funds within the areas where parking meters are located.

Action #5: Modify the Parking Permit Program

In order to keep employees out of prime customer parking areas, the City adopted a diverse permit program providing parking in several garages with varying levels of access for purchase to accommodate the many different needs of employees in the increasingly vibrant Downtown.



Image via San Francisco MetBlogs showing a solar-powered parking meter in Redwood City.

Results

While Redwood City never had an overall parking shortage, its prime areas were always chronically congested, plagued by frustration, cruising, and complaints of “this place has no parking”. Ignored by most, there were always plenty of free spaces within a few blocks. By instituting a price-driven system with no time limits, the City made the bet that people would be willing to walk for a reward (aka lower cost) and would pay more for the most desirable spaces. In March of 2007, after three weeks of full operation, the Downtown Development Coordinator for Redwood City, Dan Zack, reported positive results (Zack, 2005):

So far, Broadway has decongested quite a bit. You can now find a spot at most times in prime areas. Many people, especially long term parkers and bargain hunters, have shifted to cheaper parking on the edges of Downtown and off the street. Seventy-five cents isn't a lot of money, but you would be amazed at how frugal people are when it come to parking, even if they are driving a \$50,000 BMW filled with \$3/gallon gas.

As far as I know, we are the first city to do this. But I really think that it is a promising method for managing municipal parking and getting the most out of a limited amount

of parking in a compact, walking district. Also, we borrowed a page from Pasadena's playbook and have dedicated all surplus parking revenue (after parking expenses are paid) to increasing cleanliness, safety, lighting, street furniture, and other amenities that will make Downtown a nicer place to live, work, eat, see a band, and shop.

Currently, about 1,700 transaction a day are made at the new meters on Broadway and the streets and parking lots are reported as looking much nicer. The pricing structure is working well, too, as busy areas are turning over better and many people have shifted to cheaper areas. Also, occupancy on Broadway has decreased from 100 percent to 82 percent and the average visit is now 72 minutes (in a place that once had 1-hour time limits). Adding to the downtown improvement revenue, monthly permit sales are also up 50 percent.

In an interview with SF Weekly, Zack explains the initial difficulty of getting merchants on board with the reforms, particularly the cost increase. But as soon as they found out about the removal of time limits, and that new revenue would be created for power-washing sidewalks, they jumped ship

and even attended City Council meetings to support the new program. In its first year of existence, the new metered district generated over \$1 million for added public services such as increased police protection and cleaner sidewalks. Zack reports that the new parking meter technology had significantly increased the flexibility and convenience of Redwood City's parking. Sitting at his desk, he can monitor vacancy rates and change hourly prices for downtown spaces according to these numbers. He says:

The meters are connected and share information with each other. If you want to spend more time on the east side of downtown and your car is on the west side, you can add time to your original parking permit from any pay station in the network without having to go back to your car. We think people are really going to love that level of convenience.



Image via City of Redwood City, CA

Case Study #2: Burlingame, CA - Half-hearted attempt

Like Redwood City, Burlingame is a Bay Area Peninsula city with prime shopping, dining and entertainment attractions, and an attractive, walkable downtown.

Prompted by indications of a general parking shortage and anticipation of increased traffic and parking demand caused by pending development, the City of Burlingame hired Wilbur Smith Associates (WSA) in 2000 to conduct a parking study of the core downtown area around Burlingame Avenue Commercial District.

The goal of the study was to develop effective parking management strategies to address parking problems while maintaining the vitality of Burlingame Avenue. They sought to avoid the adverse impacts on the downtown commercial area and the immediate surrounding areas that significant parking shortage would create (WSA, 2000).

The study found that parking occupancy during the weekday peak period (between 12 noon and 1 pm) in the core area (where there are 2,281 parking spaces) often reached 94 percent or more and 84 percent in the weekend peak. However, as in Redwood City, occupancy rates areas just a few blocks from the core were 32-53 percent

during the weekday mid-day peak hour, and 29 percent during the weekend peak period.

The WSA study made a number of key recommendations to the City, including:

- raising meter fees to match parking demand (from \$0.25/hour to \$1.00/hour on Burlingame Avenue)
- changes in parking time restrictions (generally shortening them from two hours to one hour)
- installing electronic meters, and creating a partnership with downtown business interests to improve both private and public parking facilities.

The parking study projected that instituting the above recommendations would result in the freeing up 200 to 250 parking spaces.

Pedestrian Intercept Survey

A comprehensive pedestrian survey was conducted on Burlingame Avenue to identify potential problems and to gauge attitudes and perceptions about parking in the area. To ensure that the results would be

statistically valid, over 200 parkers were interviewed, representing 9 percent of the total 2,281 parking spaces in the Study area. Respondents were asked an array of questions regarding their parking and transportation habits and opinions, including the purpose of their trip downtown, how they got downtown, where they parked, and how far they walked or would be willing to walk from their parking space to their destination.

The general perception from the survey was that people viewed parking in the core area to be in short supply and that there was a general parking problem in the area. Results showed that parkers were willing to walk up to 4 blocks to their destination. However, existing parking usage patterns indicated that the average motorist was devoting considerable effort towards finding a spot within 1.4 blocks of their destination.

The survey also indicated that people were willing to pay a price of up to \$2.50 for parking that is within two blocks of their destination. Overall, there was a general willingness to pay for parking, specifically more than the current prices in exchange for a convenient, close spot.

Implementation and Results

The City of Burlingame implemented many of its parking program recommendations, including:

- One hour meters along Burlingame Avenue were raised from \$0.375 to \$0.75/hour
- Two hour meters in the area were raised from \$0.50 to \$0.75/hour
- Ten hour meters were raised from \$0.20 to \$0.25 per hour
- Implementation of a new parking information program information brochure and posting of parking information on the City's website

2004 Versus 2002 Peak Parking Occupancy

Peak occupancy remained at 86 percent for all spaces, a very high level approaching the practical limits of the area's capacity. Peripheral areas experienced an 8 percent drop in parking occupancy, although one of the lots saw a drop greater than this net loss, meaning that if that facility were excluded from the equation, there would actually be a net gain in peripheral areas overall. Overall, the core area saw very little change in occupancy between 2002 and 2004 and the peripheral/off-site parking saw a decline likely a result of significant business changes.

These results show that the prices were not set correctly to reflect the true demand of the various parking locations in the city. Prices were raised, but not enough to influence demand.

Following implementation of the new parking structure, a pedestrian intercept survey was conducted in 2004, and then again in 2005, in order to gauge perceptions regarding the new parking pricing. The survey found that there was also severe levels of ticket anxiety amongst parkers in Burlingame, where both time limits and enforce-

ment were strict. The need to carry change was also a complaint, since Burlingame uses conventional meters. Most interesting to note is that in 2004, of the four factors presented to parkers during this survey (lack of available spaces, chance of getting a ticket, need to carry change, and price), price was the second most concerning factor. In 2005, the price parking ranked the least displeasing factor.

In addition to the parking surveys, telephone interviews were conducted with 51 downtown Burlingame businesses to gather information regarding parking conditions in downtown, concerning both customers and employees. Overall, business owners were most concerned about:

- Availability of parking
- Over aggressive enforcement
- Customers finding change for the parking meters
- Customer complaints about receiving tickets

Case Study Lessons Learned

Lessons Learned

A number of key lessons about how to formulate a parking reform program for a downtown can be drawn from the experiences of Redwood City and Burlingame:

1. Get the price right:

Redwood City priced their parking to achieve an occupancy goal of 85%. That is one in eight spaces should be free. In contrast, Burlingame raised their parking prices, but not enough to effect demand. They also raised prices modestly in low demand areas where prices should have decreased to encourage remote and long term parking. As a result parking in these low demand areas actually decreased by eight percent.

2. Eliminate time limits:

Redwood city eliminated parking time limits. Burlingame made them more restrictive. As a result parkers and businesses in Burlingame were distressed by ticketing and enforcement in time limited metered parking. Redwood city by contrast managed availability with price, not time limits.

3. Involve and ensure benefits to the community

Public participation from the very beginning is a key factor for project success. When community members are involved they feel a sense of ownership over the new program and thus be more likely to support it. It is also critical that increased parking revenues benefit the local community.



Image via Tropos Networks showing a sign promoting the new parking system.

Davis Square Recommendations and Strategies

The study team has found that an area wide public parking shortage exists in Davis Square on Friday and Saturday night. While the parking lots exhibit availability at most other times during the week, there's rarely ever available parking on Elm and Holland Street. In part this is because there's little or no incentive for people to seek parking in remote lots. In order to effectively manage the parking available in Davis Square, the study makes four recommendations:

1. Get the price of public parking right

Public parking should be priced to reflect the relative demand by location and time of day. All spaces in Davis Square are currently priced the same regardless of location. This encourages employees and long term parkers to park in the best parking spaces nearest to their location. Pricing at parking meters begins at 8AM, when there's very little demand for parking, and ends at 6PM, when there's still significant demand.

Ideally the price of parking should be set to insure that there's always some parking available-- roughly that one in every seven spaces is free. If this were applied to Davis Square it would mean that parking would be very inexpensive or free before noon on weekdays; on weekday afternoons and weekend evenings parking would be

charged at a variable rate to reflect increased demand. It should be noted that Somerville residents, regardless of where in the city they live, can always park for free in the resident permit parking areas adjacent to the square.

2. Eliminate time limits

One major benefit of pricing parking correctly is the opportunity to eliminate time limits. If there is always some availability of on-street parking, then there is no reason to ration parking spaces through time limits. The key is not how long someone parks in a spot, but that there's always some availability. Pricing parking correctly accomplishes this. Not having to worry about parking time limits is one major benefit to consumers of parking that needs to be emphasized in order to help "sell" parking to businesses and drivers.

3. Dedicate a large portion of net new revenues to improving the business district

Redwood City's experience demonstrates that it is critical that net new revenues raised through increased parking revenues go back to improving the appearance and function of the area where charges are levied. Net new parking revenues would include the increased revenues generated

through raising parking prices, less revenues lost by reducing parking rates during off-peak times as well as reduction in fine revenues generated. A group of Davis Square businesses and residents could be formed to work with the city to identify areas of investment where funds could be applied.

4. Utilize Private Parking Lots

Private parking lots account for 29 percent of the parking supply in Davis Square. They are used primarily Monday through Friday during normal business hours, and are left largely empty during the evening when parking demand is greatest. Arrangements to share this space during non-business hours should be explored as access could greatly alleviate current pressures for parking during the non-business evening and weekend hours.

By utilizing private parking lots it may also be possible to delay or completely avoid building a parking structure in Davis Square. Parking garages start at about \$25,000 per space to construct. Without getting the on-street parking pricing right, visitors will still want to park on-street as long as these spaces remain the least expensive and most convenient option.

References

City of Burlingame, *Burlingame Avenue Commercial District Parking Plan Implementation Study*, Final Report. Wilbur Smith Associates in association with International Parking Design. April 11, 2001

City of Burlingame, *Burlingame Parking Phase 1 Review Parking Occupancy and Revenue Update*. Wilbur Smith Associates, December 30, 2002

City of Burlingame, *Burlingame Avenue District Phase 2 Parking Program Review*. Wilbur Smith Associates. June 9, 2005

Shoup, Donald. *Gone Parkin'*. http://www.nytimes.com/2007/03/29/opinion/29shoup.html?_r=1&oref=slogin, *New York Times*. March 27, 2007

Victoria Transport Policy Institute, *Transportation Cost and Benefit Analysis*, December 2006. www.vtpi.org/tca/

Zack, Dan. Downtown Development Coordinator, City of Redwood City, Community Development Department, Redevelopment Division. *The Downtown Redwood City Parking Management Plan*. July 25, 2005



Project Team



Mark Chase

Tufts University, Lecturer/ Transportation Planning Consultant;
Nelson Nygaard Consultants

Davis Square, Somerville, MA



Jason Kurian

Tufts University, Urban and Environmental Policy and Planning (UEP) Graduate Student

Cambridge, MA



Alison Corwin

Green Building Consultant, New Ecology, Inc.

Somerville, MA



Ilya Lozovsky

Urban Planner

Newton, MA



Gina Filosa

Tufts, UEP Alumnus

Somerville, MA



Julia Prange

Tufts University, Urban and Environmental Policy and Planning (UEP) Graduate Student

Davis Square, Somerville, MA



Kate Hoagland

Harvard Kennedy School, Communications

Davis Square, Somerville, MA



Eric Senecal

Tufts University, Urban and Environmental Policy and Planning (UEP) Graduate Student

Rockport, MA



Michael Kay

MIT, City Planning (MCP) and Transportation (MST) Graduate Student

Cambridge, MA



Natalie Wampler

Boston University, MA Preservation Studies

Cambridge, MA



Alexandra Kleyman

Environmental Planner, Camp, Dresser & McKee

Somerville, MA & Sacramento, CA



Tammy Zborel

Tufts University, Urban and Environmental Policy and Planning (UEP) Graduate Student

Somerville, MA

Appendices

Appendix A: GIS Maps of Parking Inventory

Appendix B: Survey Questions (Visitors)

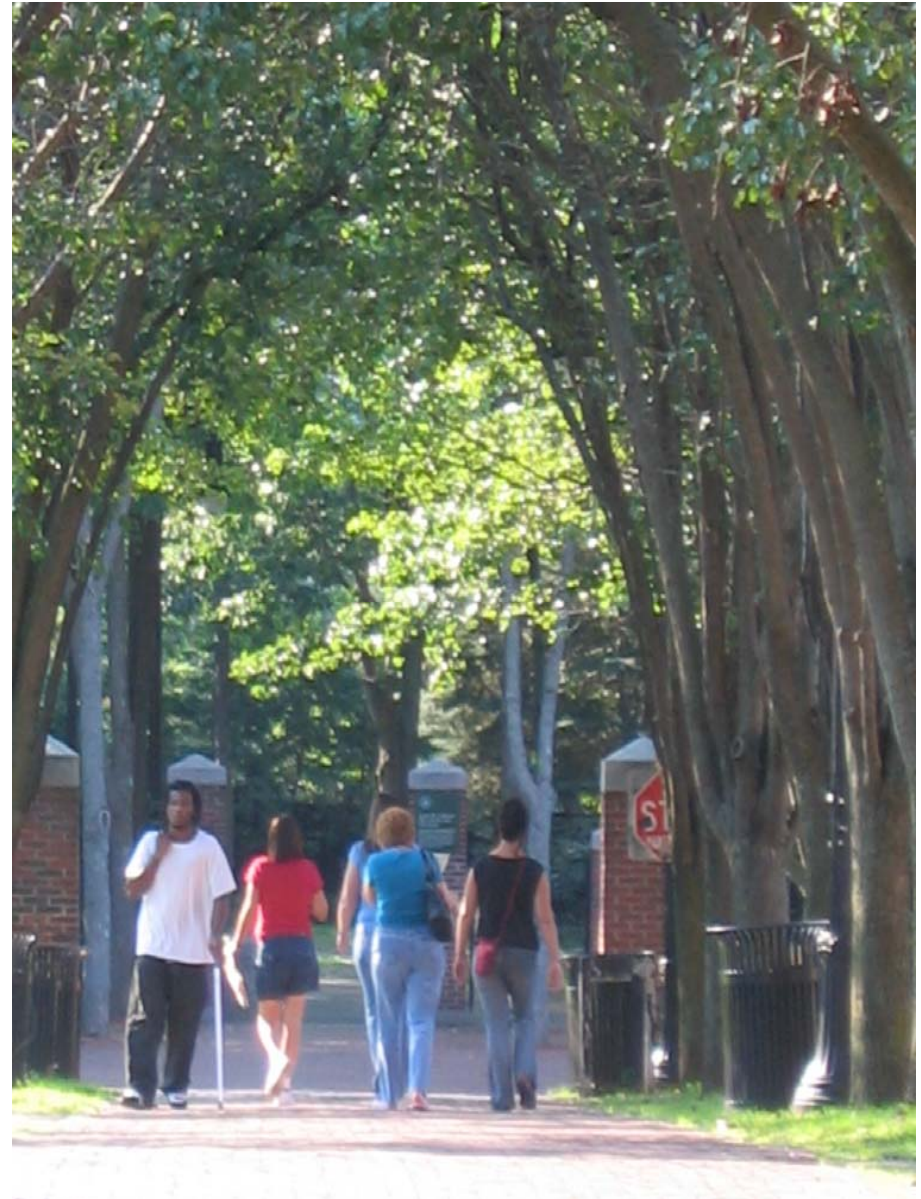
Appendix C: Survey Questions (Employees)

Appendix D: Summary Results for Visitors

Appendix E: Summary Results for Employees

Appendix F: Summary responses 8-10 (Visitors)

Appendix G: Summary responses 6-8 (Employees)



Appendix A: Maps of Parking Inventory and Demand

Map 1. Wednesday 10:00 a.m.

Map 2. Wednesday 7:15 p.m.

Map 3. Friday 7:30 p.m.

Map 4. Friday 9:30 p.m.

Map 5. Friday 11:30 p.m.

Map 6. Saturday 10:00 a.m.

Map 7. Saturday 12:00 p.m.





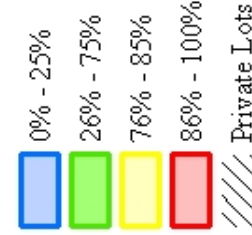
Davis Square Parking Utilization Wednesday 10:00 am

NOTE: Street cleaning
affected utilization in this area.

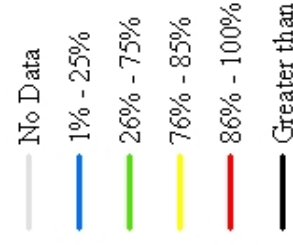


Bold numbers show the
percentage of metered spots
that are occupied in public lots.

Lot Utilization



On-Street Utilization



Private lot utilization rate - 66%
Public lot parking utilization rate - 69%

0 500 1,000 Feet



Davis Square Parking Utilization Wednesday 7:15 pm



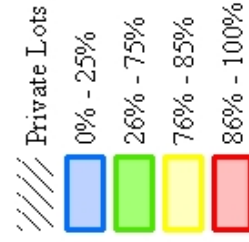


Davis Square Parking Utilization Friday 7:30 pm

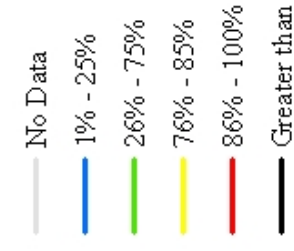


Bold numbers show the percentage of metered spots that are occupied in public lots.

Lot Utilization



On-Street Utilization



Private lot utilization rate - 42%
Public lot parking utilization rate - 96%

0 500 1,000 Feet

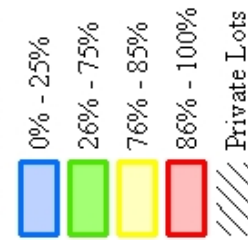


Davis Square Parking Utilization Friday 9:30 pm

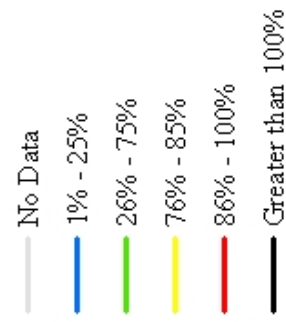


Bold numbers show the percentage of metered spots occupied in public lots.

Lot Utilization



On-Street Utilization



Private lot utilization rate - 23%
Public lot parking utilization rate - 90%

0 500 1,000 Feet

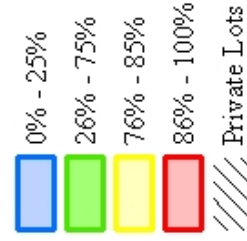


Davis Square Parking Utilization Friday 11:30 pm

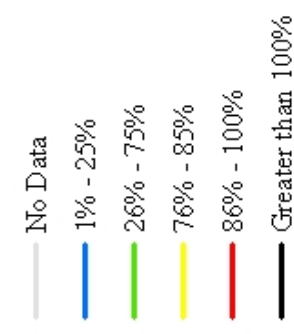


Bold numbers show the percentage of metered spots that are occupied in public lots.

Lot Utilization



On-Street Utilization



Private lot utilization rate - 13%
Public lot parking utilization rate - 76%

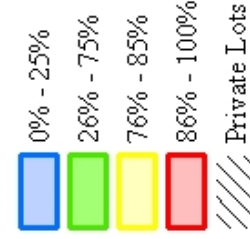


Davis Square Parking Utilization Saturday 10:00 am

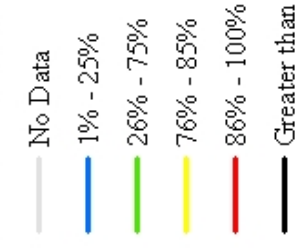


Bold numbers show the percentage of metered spots that are occupied in public lots.

Lot Utilization

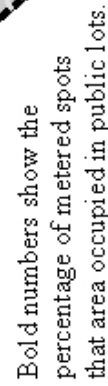


On-Street Utilization



Private lot utilization rate - 35%
Public lot parking utilization rate - 67%

0 500 1,000 Feet

\mathbb{Z} 

Private Lots

0% - 25%
26% - 75%
76% - 85%
86% - 100%

No Data
 1% - 25%
 26% - 75%
 76% - 85%
 86% - 100%
 Greater than 100%

Private lot utilization rate - 37%
Public lot parking utilization rate - 79%

— Greater than 100%

0 500 1,000 Feet

Appendix B: Survey Questions—Visitors to Davis Square

1. Are you a resident of Somerville? Yes/No
2. If no, what zip code do you travel from to get to Davis Square?
3. How do you usually get to Davis Square?
(Select more than one if your trip requires multiple modes of transportation per visit)
 - A. Bike
 - B. Car
 - C. Public Transit
 - D. Walk
4. If you typically travel by car (continue to question 6 if not):
Do you drive a personal vehicle? Y/N
Are you driven (dropped off and picked-up) by someone?Y/N
Do you carpool? Y/N
- 4a. Approximately how much time do you spend finding a parking spot?
 - A. Less than 5 minutes
 - B. 5-10 minutes
 - C. 10-15 minutes
 - D. 15-20 minutes
 - E. 20+minutes
- 4b. Where do you usually park (i.e. metered streets, parking lots)?
 - A. On-street metered space
 - B. On-street residential permit
 - C. Off-street metered space (i.e. Public parking lots)
 - D. Business parking lot (i.e. free for customers)
- 4c. Approximately how far from your intended destination do you typically park?
 - A. Less than 1 block
 - B. 1-3 blocks
 - C. 4-6 blocks
 - D. 7 or more blocks
5. Overall, how satisfied are you with parking availability in Davis Square?
 - A. Very satisfied
 - B. Content—rarely a problem
 - C. Somewhat satisfied, similar to parking in other communities
 - D. Completely Unsatisfied—often frustrated by lack of available spaces
 - E. N/A (does not drive)

6. How often do you visit Davis Square in a week?
 - A. Less than 3 times/ week
 - B. 4-6 times/week
 - C. 6-8 times/week
 - D. More than 8 times /week
7. Does a lack of parking ever influence your decision to come to Davis Square?
 - A. Almost Always
 - B. Occasionally
 - C. Rarely
 - D. Never
8. How would you like to see parking options in the Davis Square area improved? Please describe:
9. What is your favorite thing about Davis Square?
10. If you could change or improve one thing in Davis Square what would it be?



Appendix C: Survey Questions—Employees in Davis Square

1. Are you a resident of Somerville? Yes/No
2. If no, what zip code do you travel from to get to Davis Square?
3. In what general area of Davis Square do you work?
 - A. Holland St
 - B. Between Cameron St. and Buena Vista
 - C. Between Buena Vista and Dover
 - D. College Ave
 - E. Highland Ave (from the circle to Cutter Ave.)
 - F. Elm St.
 1. From Day St. to Chester
 2. From Chester to Russell St.
 - G. Other:
4. How do you usually get to Davis Square?

(Select more than one if your trip requires multiple modes of transportation per visit)

 - A. Bike
 - B. Car
 - C. Public Transit
 - D. Walk
5. If you typically travel by car (continue to question 5 if not):

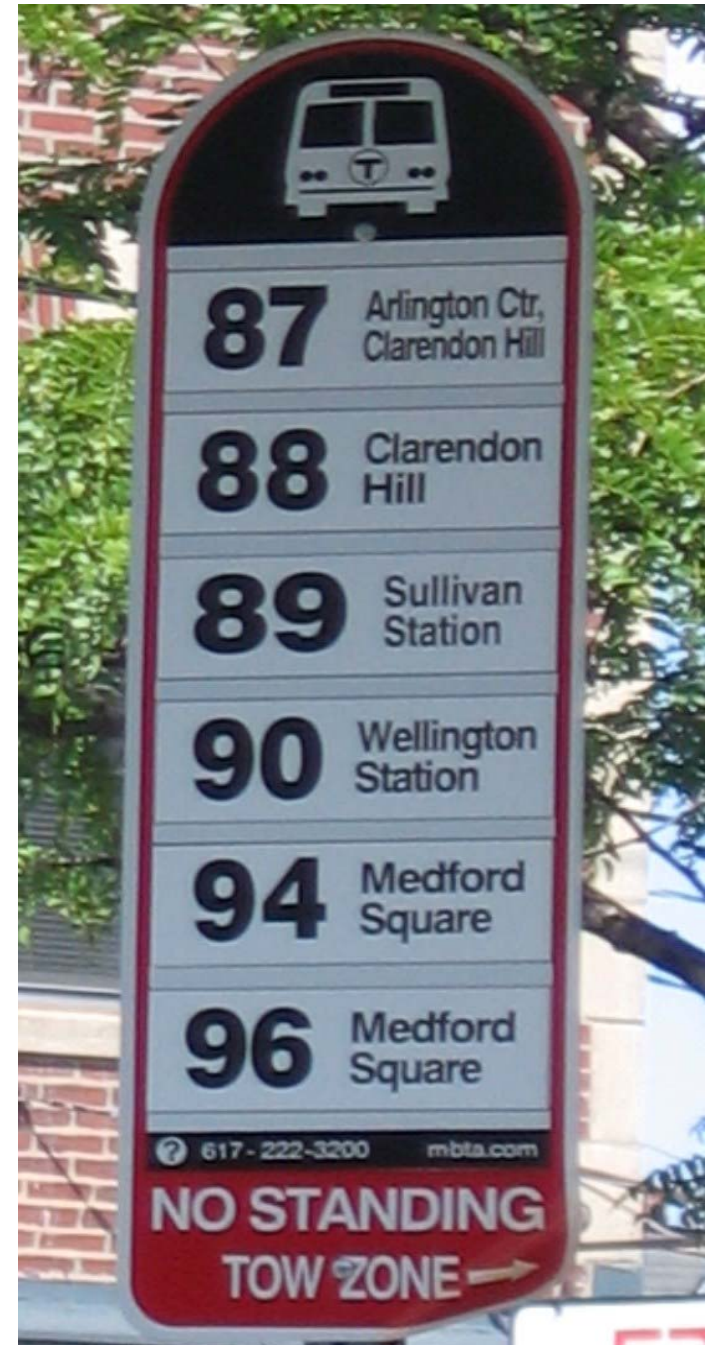
Do you drive a personal vehicle? Y/N

Are you driven (dropped off and picked-up) by someone?Y/N

Do you carpool? Y/N

- 5a. Approximately how much time do you spend finding a parking spot?
 - A. Less than 5 minutes
 - B. 5-10 minutes
 - C. 10-15 minutes
 - D. 15-20 minutes
 - E. 20+minutes
- 5b. Where do you usually park (i.e. metered streets, parking lots)?
 - A. On-street metered space
 - B. On-street residential permit
 - C. Off-street metered space (i.e. Public parking lots)
 - D. Business parking lot (i.e. free for customers)
- 5c. Approximately how far from your intended destination do you typically park?
 - A. Less than 1 block
 - B. 1-3 blocks
 - C. 4-6 blocks
 - D. 7 or more blocks

6. How would you like to see parking options in the Davis Square area improved? Please describe:
7. What is your favorite thing about Davis Square?
8. If you could change or improve one thing in Davis Square what would it be?



Appendix D: Summary Results of Visitor Survey

(Generated by Survey Monkey)

Are you a resident of Somerville?

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Yes | 41.7% | 48 |
| No | 58.3% | 66 |
| <i>answered question</i> | | 114 |
| <i>skipped question</i> | | 0 |

If you are not a resident of Somerville, what is your current zipcode?

| Answer Options | Response Count |
|--------------------------|----------------|
| | 66 |
| <i>answered question</i> | 66 |
| <i>skipped question</i> | 48 |

How do you usually get to Davis Square? (Select all that apply for a single trip to Davis)*

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Bike | 18.40% | 21 |
| Car | 45.60% | 52 |
| Public Transit | 31.60% | 36 |
| Walk | 38.50% | 44 |
| Other (please specify) | 2.60% | 3 |
| <i>answered question</i> | | 113 |
| <i>skipped question</i> | | 1 |

If you typically travel by car - do you...

| Answer Options | Response Percent | Response Count |
|-----------------------------------|------------------|----------------|
| N/A - Does not travel by car | 38.7% | 41 |
| Drive a personal vehicle | 52.8% | 56 |
| Get dropped off by another driver | 5.7% | 6 |
| Carpool | 2.8% | 3 |
| <i>answered question</i> | | 106 |
| <i>skipped question</i> | | 8 |

If you drive your own car, approximately how much time do you spend finding a parking spot?*

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Less than 5 minutes | 36.8% | 21 |
| 5-10 minutes | 42.1% | 25 |
| 10-15 minutes | 17.5% | 9 |
| 15-20 minutes | 1.8% | 0 |
| 20+ minutes | 1.8% | 1 |
| <i>answered question</i> | | 56 |
| <i>skipped question</i> | | 58 |

If you drive your own car, where do you usually park?*, **

| Answer Options | Response Percent | Response Count |
|---|------------------|----------------|
| On-street metered space | 63.6% | 35 |
| On-street residential permit | 12.7% | 7 |
| Off-street metered space (i.e. public parking lots) | 45.5% | 25 |
| Business/ customer parking lot | 3.6% | 2 |
| Other (please specify) | 12.7% | 7 |
| <i>answered question</i> | | 55 |
| <i>skipped question</i> | | 59 |

*Represents the number of time each mode was selected; Each respondent may select more than one mode. Total "Response Percent" and "Response Count" will therefore exceed the true sample size.

**Figures used in analysis were based on those who specified "car" as at least one mode of transportation that they used to visit Davis Square (52). Sample from the raw data is greater because some respondents who did not select "car" answered car-specific questions.

If you drive your own car, approximately how far from your intended destination do you typically park?*

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Less than 1 block | 25.5% | 14 |
| 1-3 blocks | 56.4% | 31 |
| 4-6 blocks | 14.5% | 8 |
| 7 or more blocks | 3.6% | 2 |
| <i>answered question</i> | | 55 |
| <i>skipped question</i> | | 61 |

Overall, how satisfied are you with parking availability in Davis Square?

| Answer Options | Response Count |
|--|----------------|
| Very Satisfied | 8 |
| Content -rarely a problem | 20 |
| Somewhat Satisfied | 32 |
| Unsatisfied - often frustrated by lack of available spaces | 13 |
| N/A - Does not drive | 29 |
| <i>answered question</i> | 102 |
| <i>skipped question</i> | 12 |

How often do you visit Davis Square in one week?

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Less than 3 times/week | 55.1% | 54 |
| 4-5 times/week | 24.5% | 24 |
| 6-8 times/week | 11.2% | 11 |
| 8 or more times/week | 9.2% | 9 |
| <i>answered question</i> | | 98 |
| <i>skipped question</i> | | 16 |

Does a lack of parking ever influence your decision to come to Davis Square?

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Almost Always | | 2 |
| Occasionally | | 25 |
| Rarely | | 21 |
| Never | | 48 |
| <i>answered question</i> | | 96 |
| <i>skipped question</i> | | 18 |

Appendix E: Summary Results of Employee Survey

(Generated by Survey Monkey)

| Are you a resident of Somerville? | | |
|-----------------------------------|------------------|----------------|
| Answer Options | Response Percent | Response Count |
| Yes | 52.6% | 10 |
| No | 47.4% | 9 |
| answered question | | 19 |
| skipped question | | 0 |

| If you are not a resident of Somerville, what is your current zipcode? | |
|--|----------------|
| Answer Options | Response Count |
| | 10 |
| answered question | 10 |
| skipped question | 9 |

| How do you usually get to Davis Square? (Select all that apply for a single trip to Davis) | | |
|--|------------------|----------------|
| Answer Options | Response Percent | Response Count |
| Bike | 36.8% | 7 |
| Car | 36.8% | 7 |
| Public Transit | 31.6% | 6 |
| Walk | 26.3% | 5 |
| Other (please specify) | 5.3% | 1 |
| answered question | | 19 |
| skipped question | | 0 |

| In what general area of Davis Square do you work? | | |
|---|------------------|----------------|
| Answer Options | Response Percent | Response Count |
| Holland Ave - Between Cameron St and Buena Vista | 0.0% | 0 |
| Holland Ave - Between Buena Vista and Dover | 26.3% | 5 |
| College Ave | 0.0% | 0 |
| Highland Ave (from the circle to Cutter Ave.) | 0.0% | 0 |
| Elm St - From Day St. to Chester | 73.7% | 14 |
| Elm St - From Chester to Russell | 0.0% | 0 |
| Other (please specify) | 0.0% | 0 |
| answered question | | 19 |
| skipped question | | 0 |

| If you typically travel by car - do you... | | |
|--|------------------|----------------|
| Answer Options | Response Percent | Response Count |
| Drive a personal vehicle | 42.1% | 8 |
| Get dropped off by another driver | 10.5% | 2 |
| Carpool | 0.0% | 0 |
| N/A - Does not drive | 47.4% | 9 |
| answered question | | 19 |
| skipped question | | 0 |

If you drive your own car, approximately how much time do you spend finding a parking spot?

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Less than 5 minutes | 62.5% | 5 |
| 5-10 minutes | 25.0% | 2 |
| 10-15 minutes | 12.5% | 1 |
| 15-20 minutes | 0.0% | 0 |
| 20+ minutes | 0.0% | 0 |
| N/A | 0.0% | 0 |
| <i>answered question</i> | | 8 |
| <i>skipped question</i> | | 11 |

If you drive your own car, where do you usually park?

| Answer Options | Response Percent | Response Count |
|---|------------------|----------------|
| On-street metered space | 50.0% | 4 |
| On-street residential permit | 25.0% | 2 |
| Off-street metered space (i.e. public parking lots) | 37.5% | 3 |
| Employee parking lot | 0.0% | 0 |
| Business permit | 0.0% | 0 |
| N/A | 0.0% | 0 |
| Other (please specify) | 25.0% | 2 |
| <i>answered question</i> | | 8 |
| <i>skipped question</i> | | 11 |

If you drive your own car, approximately how far from your job do you typically park?

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Less than 1 block | 12.5% | 1 |
| 1-3 blocks | 75.0% | 6 |
| 4-6 blocks | 12.5% | 1 |
| 7 or more blocks | 0.0% | 0 |
| N/A | 0.0% | 0 |
| <i>answered question</i> | | 8 |
| <i>skipped question</i> | | 11 |



Appendix F: summary of visitors' responses to survey questions 8-10

8. How would you like to see parking options in the Davis Square area improved? Please describe specific suggestions (24 responses)

Additional Parking facilities

- Municipal lot
- Build more parking garages
- A parking garage a block or two away from the main square
- Public lots or at least more streets that are not just permit only parking.
- More bike parking
- Open private lots for night time use
Provide one or two on street-bike parking spaces near the curb extensions on Elm and Highland
- Have a multistory parking garage for everyone so that it would ease congestion on the very lively streets but would allow people to park. I do not mind walking up the half-mile from the garage to my destination as long as I am sure I'll find a spot and won't get ticketed (they are fierce!).
- It seems that there is always available parking in the Shaw's parking lot... is that available for non-customers?
- More bike parking is needed, especially in front of Diesel, for instance
- Free parking garage
- More parking
 - More public parking spaces, better

signs for them

- More bike parking in well lit areas that are well maintained (abandoned bikes cut free).
- More parking, less permitting
- Public parking closer to Porter square
- A garage might work if it's out of the way

Non-facility improvements/suggestions:

- More business permits for employees
- Have 1 hour meters and less aggressive ticketing
- It would be great to see more bike parking and the implementation of innovative pricing strategies to reduce the number of people circling around looking for parking.
- More time on the meter; give a 5 minute grace period before ticketing. There are too many parking tickets, makes me not want to do business here
- No meters till 8

- More short term parking...sometimes I just need to park, run into a store or pick up from Anna's Taqueria, then leave, all under 5 or 6 minutes.
- Why do they have a vegetable market that takes up half the available metered parking during the day
- Pay more for parking - i.e. all day pass
- No meters; Overall no changes, parking in Davis is good
- Offer better alternatives - more frequent bus service
- Fix inconsistencies with meters
- Extend time limits; Reduce resident permitting
- Eliminate or reduce resident permitting

Question 8- Most frequent responses:

- 11 suggestions of additional parking through a garage, lot or other physical infrastructure
- 10 respondents either did not see parking as a problem or did not want to see parking infrastructure increased
- 4 requests for more bike parking
- 10 people cited the need to change or improve current metering in Davis

- People need to know where to park - there are too many restricted areas and rules, people don't know where to go. Need to reduce ticketing at meters
- Continuity of parking meters - some end at 6p.m., others end at 8p.m.
- Parking signage needs to be more accurate - tickets given out to uninformed drivers
- Credit card or "pay by phone" meters - parking is not the issue, it is the consequence (ticket) of parking and not getting back to your meter in time

Opinions

- Transportation and parking in Davis are not that bad
- I think there's plenty already
- Don't know. It's hard to make improvements. Maybe give out more tickets?
- I am satisfied with the parking situation
- I don't see how the parking situation in the Square will improve since it's so compact
- Nothing - There is plenty of parking in Davis
- People should take public transportation
- Improve and promote public transit options; extend hours of the T on weekends

9. *What is your favorite thing about Davis Square?* (85 responses)

Complete list:

- Populated, accessible to transit, movies
- Close to Harvard Sq.
- Activities, diversity, atmosphere
- Variety
- History; Johnny D's; Folk Music
- Pedestrian friendly; human-feel; local businesses
- Lively
- Presence of independent shops; not everything is a chain
- The energy, atmosphere
- Downtown
- It's not pretentious
- Atmosphere and dining options
- The organic, funky vibe of the mainly locally owned shops
- great local shops, that are starting to be pushed out by the likes of Chipotle, CVS, BSC etc. Hope the area can keep the charm better than Harvard Sq.
- I love the independent stores, the mix of people who are always there, the architecture and the public art.
- Density of shops and proximity to transit.
- people playing music in the square. also the movie theater
- transit options
- It's close to my school, has a branch of my bank (bank of america) and buses that take me to my house
- Vibrancy, diversity of places to go to for different interests and incomes, central square.
- The less cars the better of course, and I know I am contributing to it sometimes, but I see no other options (there is no easy way to get to Somerville from where I live except by driving).
- the community
- The liveliness, music and groups of people hanging out in the summer, the good restaurants, walkability, mix of stores that sell a lot of things I need...
- pedestrian friendly
- funkiness
- It's life, it's diversity, it's spontaneity
- Vibrancy
- Social atmosphere
- Beautiful
- Walkability; Library; Neighborhood
- Music scene
- Universal feel
- Funky atmosphere
- unique and locally owned shops
- Farmers market
- Sense of community; diversity
- Variety of options
- Community
- Hanging out with friends
- Diversity

- transit-oriented; Family environment
- sense of community; atmosphere
- Social area; good place to hang out; sense of community
- Farmers Market
- Quirkiness, independently owned stores, the theater, and T accessibility
- evenings outside in the square with ice cream
- proximity of services, ability to walk. I rarely drive here
- the plaza outside JP Licks, the number of people walking around
- Vibrant nightlife, public transit access, pubs, people, culture, diversity
- Access to the train
- It's vibrant, walkable, non-car oriented, and FUN
- Theater
- Boston Sports Club
- movies
- movies and ice cream



Question 9- **Most frequent responses:**

62 responses: Atmosphere/ Area/ Things to do –
 10 – Diversity, variety of activities
 5 – Transportation options
 32 – Sense of community, being around people

Food/ Restaurants – 38

- Anna Tacqueria -2
- Diesel -5
- Sacco's Bowl Haven
- Blue Shirt Café
- Tibetan Restaurant
- J.P. Licks – 4
- Sessa
- Redbones

Shopping – 6 responses

Bars/ Pubs -4 responses (The Burren)

- All of its venues being so closely located to each other
- Festivals
- Pubs
- Theater
- Variety of things to do
- Bar scene
- Somerville Theater
- So many things to do

10. If you could change or improve one thing about Davis Square, what would it be? (85 responses)

Aesthetics /Beautification:

- Clean it up
- Preserve historical buildings
- Plastic bottle/aluminum can recycling bins
- More green space
- more trees
- More outdoor patios at the restaurants
- Clean up trash
- Increase urban greenery - flowers and horticulture outside shops is very nice
- More greenery in the plaza
- Less hardscape, more winter barrier to traffic
- Drainage at the curb cuts—you have to be a long jumper to get over the puddles when it rains and snows

Transportation Related:

- Parking could be improved
- Parking structure
- buses
- More parking
- Get rid of parking meters
- Make the T run Fridays and Saturdays till 2:30am

- Less cars
- Traffic patterns
- All the one-way streets that lead out of Davis but the very few that lead into Davis. Someone really needs to re-examine the grid there.
- Increase bike parking facilities
- Wider sidewalks and or bike lanes, to make it more desirable to walk [and the T] or ride a bike
- Add quality bike parking and improve pedestrian crossings
- a less confusing intersection
- I would remove more of the parking spaces on Highland? Ave. Cars parked there often block the right turn lane at the bus station going onto College Ave. It disrupts traffic flow. Somerville meter maids also have a bad habit of ticketing in legal spots
- Remove all cars and make it completely pedestrian
- More bike lanes
- Make Elm Street a pedestrian walkway
- No tickets for street cleaning
- Less one-way streets
- Traffic pattern
- More frequent bus service
- More bike racks
- Less traffic from cars
- Reduce through traffic, make more pedestrian friendly
- Reduce amount of traffic
- More parking
- Reduce speed that cars can drive through the square - no reason to fly through at 40mph; Increase pedestrian safety
- Less aggressive ticketing at meters - Even if 1 minutes late they issue a ticket
- less cars - divert traffic
- Parking for people visiting from outside the area
- Lessen timing of the traffic lights
- The traffic - it's really not set up for driving and it might be a better place for both cars and pedestrians if traffic was somehow rerouted away from the big mishmash intersection
- the traffic lights are simply too long
- Increase the frequency of the bus lines that go in and out of the square
- charge market priced parking Square

Question 10**Most frequent transportation-related responses:**

2: Ticketing

16: Promote and improve transportation alternatives (T, bike safety, pedestrian-friendly)

6: Reduce or eliminate cars

13: Traffic/ parking

Commercial/ Economic Development:

- Shoe store
- Reduce # of burrito places
- More food variety, i.e. less mexican (there are 3 mexican restaurants!)
- Limit chain stores and coffee shops
- Reduce chain stores, promote local, small business
- Decrease chain stores; bring back Someday Cafe
- More variety of restaurants
- Get rid of chains!
- Reduce the number of chain stores that are coming in
- More residential units
- get rid of cvs
- Somehow slow the process of gentrification, homogenization and corporate branding. But how to save an area from its own success?

- Not have the CVS and sports club right in the middle of it
- Reasonably priced food
- Reduce big business presence; promote local
- Increase small, local business
- Lower height of new CVS development;
- Offer more live music
- Better options for groceries
- More variety of social options
- Limit big commercial development such as CVS/Boston Sports Club block and Chipotle

- More local businesses; less chains
- Diversity of businesses - there's a lot of the same type of shops/ food places
- Make housing prices more affordable; Bring back Disk Diggers
- Shopping - more retail
- Unhappy with new commercial development, i.e. the CVS building is out of place and detracts from character of the square
- Trucks unloading on Elm st.
- I would re-open Someday Cafe
- more retail like shoe shop, clothing, housewares. There are so many eateries
- bring back mcintyre and moore's!
- improve the quality of stores on highland (seriously, who uses a travel agent these days??). add a better bar. clear out the drunks from the t station. improve the smell behind mckinnon's. sorry, that's 4 things..
- have bars stay open until 2 am

Question 10**Most frequent development-related responses:**

12 - Reduce chain stores

7 - Promote/support local business

7 - Change food options

Appendix G: Employees individual response questions 6-8

6. How to improve parking for employees

- there are no non metered/permit parking spots for people whom live in other cities
- Business parking permits. I work in a cafe and it is difficult to remember to feed the meter every 2 or 3 hours, when I'm working for 40hrs a week.
- More quality, curbside bicycle racks and designated free scooter/ motorcycle spots (like instead of one car parking spot on Elm St, put in parking for 16 bicycles or 6 motorcycles).
- it's an hip, urban area. i think what is to be expected. i guess it's just one of the draw backs of making it and its one i personally feel fine contending with. that being said, any encouragement in the direction of being more bike friendly more bike racks! also, i have to drive sometimes and the one hour limit meters closest to my work makes it hard to feed the meter and i get tickets.
- there should be an employee parking area!!! or special employee stickers. So that people didnt get tickets all the time, and or towed!!!!

- n/a. i have no problems with it.
- overdue meter fee waived for employees.
- business parking permits for full time employees, reserved street cleaning spaces for full time employees
- Specific parking lots for employees
- Late night T
- Late night T
- none - no complaints
- Feeding the meter sucks, but understand that city needs its revenue

7. Favorite thing about Davis Square

- diesel coffee and redbones
- The people and the atmosphere. Especially redbones and diesel.
- famliar faces - still feels like a neighborhood
- diesel cafe
- the vibe it gives off
- diesel cafe!!!
- not the parking. i guess the shops/ restaurants on elm
- diesel cafe, magpie, redbones
- Walking around and running into people I know. I love the small-town community feel.
- Diversity
- Somerville Theater

- Community
- Small community feel

8. Change or improve one thing:

- less corporate business and bring in more small ones
- Better parking for the employees making this place great.
- Add an off-leash, fully fenced dog park! somewhere...
- a thai place.
- i would get rid of all the corporations mcdonalds dunkin donuts etc. and make it strickly indie businesses and mom and pop stores....
- take down the horrible lit sign on the corner of highland and college/elm st. the one that has the news reel.
- parking tickets
- parking accessibility
- No chain restaurants/stores. I don't want it to turn into harvard square.
- the smell; it stinks in certain areas
- More parking
- Lower business rents
- T should run later; a night owl run from 1-2a.m.
- Less gentrification
- more parking

